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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/025,540	12/26/2001	Yasutomo Watanabe	35.C16067	8300
5514	7590	03/05/2004	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO			BROOKE, MICHAEL S	
30 ROCKEFELLER PLAZA			ART UNIT	
NEW YORK, NY 10112			PAPER NUMBER	

2853

DATE MAILED: 03/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/025,540	Applicant(s) WATANABE, YASUTOMO	
	Examiner Michael S. Brooke	Art Unit 2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 7-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 7-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Fig. 11

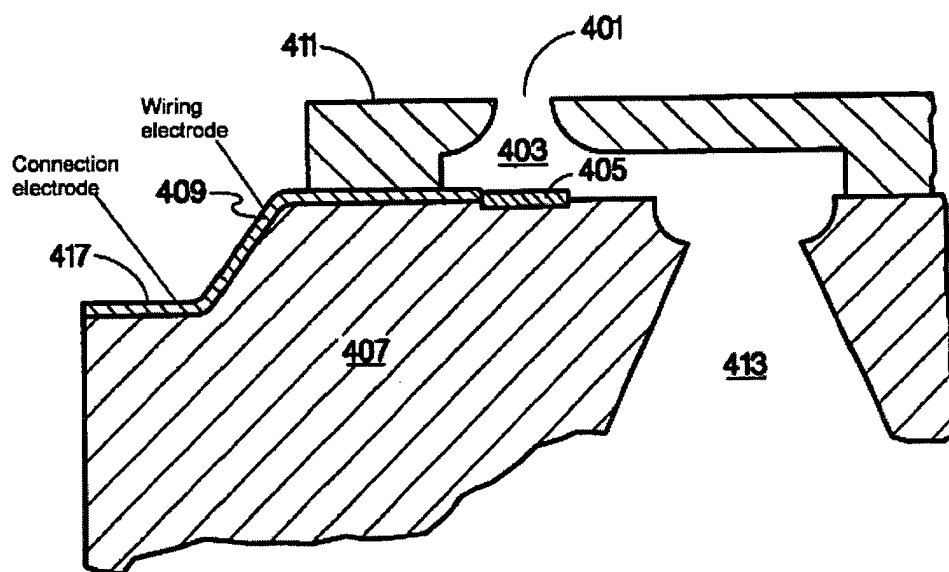


Fig. 4

As can be seen in the figures, the print head comprises a flat substrate having an end surface and front and back main surfaces, the front and back surfaces having an area that is larger than the end surface. A wiring electrode (409) is connected to an energy generating element (405) that is formed on the front surface. A stepped surface is provided at the end of the substrate. A connection electrode is connected to the wiring electrode and is provided on the stepped surface. An electrical wiring member (1115) is superimposed onto the connection electrode and is connected to the connection electrode through a bump electrode. Furthermore, as shown in Fig. 11, the connection electrode and the wiring member are vertically overlapped, with the bump electrode provided between them.

With regard to claim 7, the energy generating member is an electrothermal converting element.

With regard to claim 8, the energy generating member is disposed so as to face the discharge port (401).

With regard to claim 9, Fig. 2 illustrates the print heads are mounted on a cartridge (204).

Beerling et al. teaches the claimed invention with the exception of a sealing member, wherein the sealing member does not extend beyond the discharge port.

Wong et al. teaches (Fig. 5B) an ink jet print head having a sealing member (110) that covers the electrical connections and not extend beyond the discharge port. The sealing member provides the advantages of isolating the electrical connections from the ink and cleaning mechanism of the printer, while allowing the head to operate in close proximity to the print medium (col. 2:37-45).

It would have been obvious to one of ordinary skill in the ink jet art at the time the invention was made to have provided Beerling et al. with a sealing member as taught by Wong et al., in order to provide the advantages of isolating the electrical connections from the ink and cleaning mechanism of the printer, while allowing the head to operate in close proximity to the print medium.

The steps of the method of claim 10 are deemed to be obvious in view of the functions of the structure discussed above, as one would obviously perform the claimed methods steps to arrive at the disclosed apparatus.

Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beerling et al. (6,325,488) in view of Wong et al. (6,188,414), as applied to claims 1 and 7-10 above, and further in view of Silverbrook (5,796,416).

Beerling, as modified, teaches the claimed invention with the exception of the substrate being made of single crystal silicon.

Silverbrook teaches an ink jet print head having a substrate (101) that is made from single crystal silicon. This material provides the advantages of allowing the drive circuitry to be fabricated in the substrate, allowing the print heads to be manufactured using standard VLSI technology and providing substrates having high mechanical strength and rigidity (col. 10:37-49). The limitation directed to the anisotropic etching of the print head is not given patentable weight, since it is a method limitation and does not patentably limit the apparatus.

With regard to claim 3, Beerling et al. teaches that the stepped surface is located in an area of the substrate that becomes thinner in a stepwise fashion, in the vicinity of the end face.

With regard to claim 4, Beerling et al. teaches that the stepped surface is parallel to the front surface.

It would have been obvious to one of ordinary skill in the ink jet art at the time the invention was made to have manufactured the substrate of Beerling et al, as modified, from single crystal silicon for the purpose of providing the advantages of allowing drive circuitry to be fabricated in the substrate, allowing the print heads to be manufactured

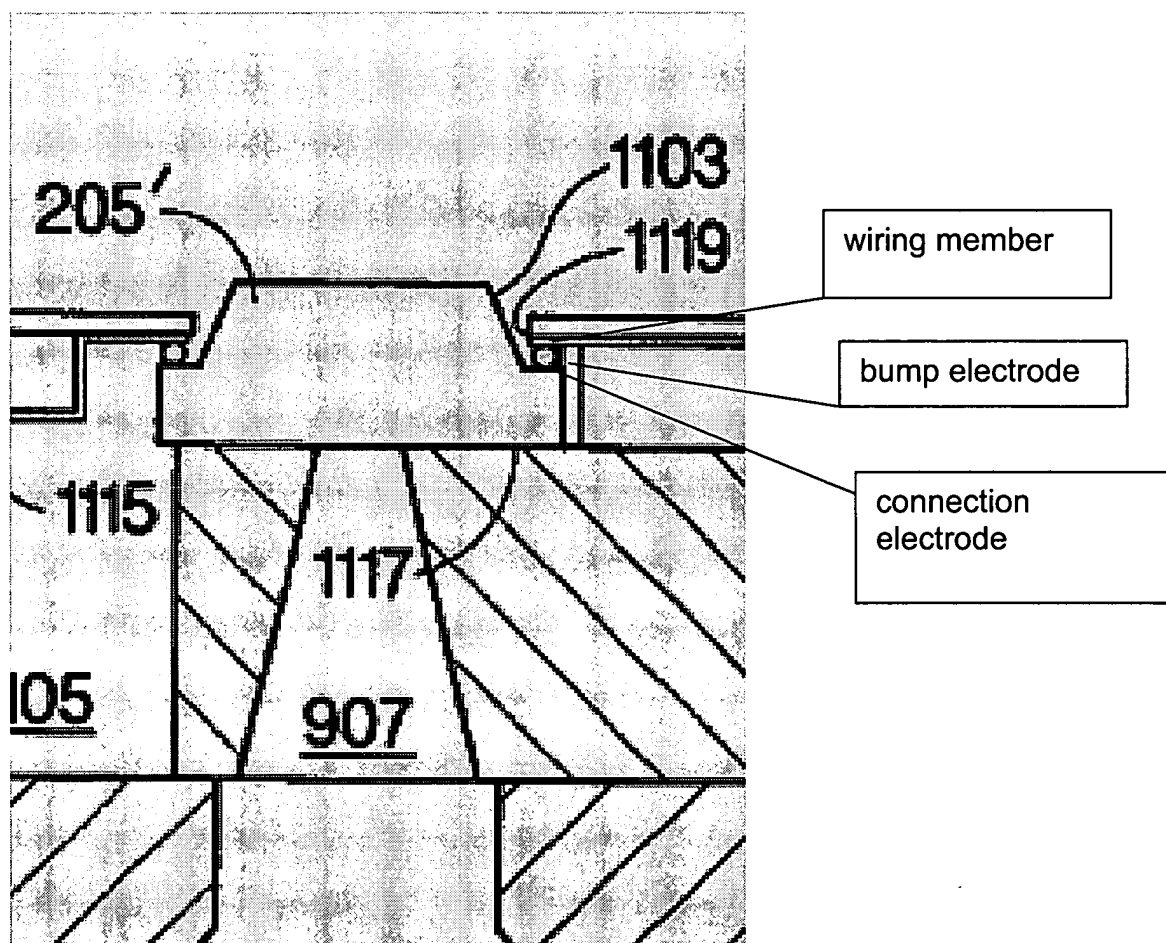
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using standard VLSI technology and providing substrates having high mechanical strength and rigidity, as taught by Silverbrook.

Response to Arguments

Applicant's arguments filed 02/02/04 have been fully considered but they are not persuasive.

Applicant's argument that Beerling does not teach the connection electrode, bump electrode and wiring member being vertically aligned is not persuasive. In the previous Office Action, the Examiner provided an enlargement of a portion of Fig. 11 of Beerling. This image, in conjunction with Fig. 4 of Beerling, clearly illustrates the claimed alignment of the common electrode, the bump electrode and the wiring member. In the Amendment, the Applicant alleges that Beerling does not teach these features in its discussion of Fig. 11. While the written specification may or may not discuss the alignment of the various electrodes, the figures are also part of the disclosure. The Applicant has failed to address why the figures do not teach the claimed features. Therefore, it is the Examiner's position that the claimed alignment is taught by Beerling, as shown in the figure below, which illustrates a portion of Fig. 11. Thus, the prior teaches the limitation as claimed.



In response to applicant's arguments against Wong, individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this case, Wong is not cited to teach the arrangement of the electrodes. Rather, Wong is cited to teach the use of a sealing member that covers the electrical connections and that does not extend beyond the discharge port. The Applicant has not provided any arguments as to why Wong does not teach this feature.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

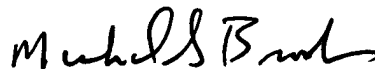
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael S. Brooke whose telephone number is (571) 272-2142. The examiner can normally be reached on M-F from 5:30 AM-2:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Michael S. Brooke
Examiner
Art Unit 2853

MSB
03/03/04